BACKGROUNDER

Regulation phasing out ozone-depleting solvents

A draft regulation was released June 29, 1994 for a 30-day public comment period by Environment and Energy Minister Bud Wildman. The regulation would phase out the discharge, manufacture, use or transfer of specific Class 1 ozone-depleting solvents (ODS) such as chlorofluorocarbons (CFC), carbon tetrachloride and methyl chloroform. It will ultimately prohibit storage of these materials.

The regulation also sets a phaseout deadline for the less damaging Class 2 chemicals, hydrochlorofluorocarbons (HCFC), which some users are considering as transitional solvents until they are ready to change to solvents which do not deplete ozone.

The draft regulation:

- Prohibits the discharge, use or transfer of specific Class 1 and Class 2 ozone-depleting solvents (ODS) after July 1, 1996 and Jan. 1, 2000, respectively.
- Prohibits making Class 1 and Class 2 ODS solvents as of Jan. 1, 1996 and 2000 respectively.
- Prohibits the storage of Class 1 and Class 2 ODS solvents after July 1, 1998 and Jan. 1, 2002, respectively.
- Requires a report for Class 1 ODS solvents stored after July 1, 1996, and Class 2 ODS solvents stored after Jan. 1, 2000, to be available on request by the Ministry of Environment and Energy.
- Exempts ODS Class 1 and 2 solvents used for research purposes related to the study of the ozone layer.
- Exempts use where the ODS Class 1 and 2 solvents used in a process are converted to another substance which is not an ODS Class 1 or 2 solvent.
- Exempts use where the ODS Class 1 or 2 solvents are created and then converted to another substance which is not a Class 1 or 2 solvent.

This regulation overrides conditions included in existing certificates of approval for Class 1 and 2 solvents.

Background

Ozone-depleting substances cause serious environmental and health problems. They destroy the ozone layer that protects us from ultraviolet (UV-B) radiation and they contribute to the greenhouse effect.

UV-B radiation causes skin cancer, cataracts, crop and material damage.

Canada signed the Montreal Protocol and its Copenhagen amendments which ban the production and import of: CFCs, methyl chloroform and carbon tetrachloride by 1996; halons in 1994; and HCFCs by 2030.

Unlike the federal regulations, the Ontario legislation will regulate the use of specified Class 1 and 2 ozone-depleting substances used in solvent formulations. The new regulation sets a phaseout schedule for ODS that complements the Montreal Protocol.

Discharge/emissions of ODS into the environment and limitations of their storage will be prohibited, making the Ontario regulation the most comprehensive legislation in Canada.

Industry Information

In Canada, about 4.5 per cent of total CFC consumption, 100 per cent of methyl chloroform produced and sold and about 3 per cent of carbon tetrachloride consumed were used as solvents in 1992.

In Ontario, an estimated 160 tonnes (4.5 per cent) of a total of 3,521.6 tonnes of CFCs and a total of 5,000 tonnes of methyl chloroform were used as solvent in 1992. In 1990, a total of 216 tonnes of carbon tetrachloride was used primarily as feedstock for the production of CFCs, with a small portion used in some solvent applications.

Solvents are used for cleaning purposes in a variety of manufacturing processes and are also used in adhesives, in paints and inks and in dry-cleaning. About 85 per cent of methyl chloroform and 97 per cent of CFC-113 are used in electronics, precision, metal and general cleaning.

CFC-113 and Methyl chloroform are no longer produced in Canada. Cornwall Chemicals Co. still produces small quantities of carbon tetrachloride in Canada.

Alternative cleaning chemical and technologies exist for these chemicals. Many of the larger companies in particular have already adopted non-ODS solvent alternatives. Examples include IBM, Northern Telecom and Litton Systems. Others who have not, should realize long-term cost-savings as the price of ODS solvents increases and availability decreases.

Substitute cleaning chemicals include:

- Other chlorinated solvents;
- Organic solvents;
- Hydrocarbons;
- Perfluorocarbons; and
- HCFCs.

Alternative cleaning systems include:

- Semi-aqueous cleaning;
- Aqueous cleaning;
- Non-solvent cleaning technologies; and
- No-clean production systems.

Substitute solvent chemicals and technologies also exist for: adhesives; coatings and inks; and dry cleaning. The alternatives for adhesive solvents include: water-based and high-solid formulations; hot-melt adhesives; and radiation curing. Similarly, alternatives for coatings and inks include: water-based; high-solids; and powder formulations. Dry-cleaning alternatives include: perchloroethylene, petroleum products and HCFCs. The latter are considered transitional substances which are also destined for phaseout.

Public comment on the proposed regulation must be mailed or delivered by August 2, 1994 to:

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